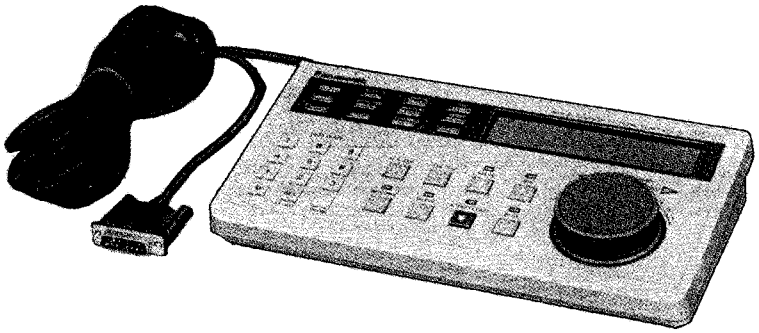
ORDER NO. AD9101008C2

Service Manual

Remote Controller for Digital Audio Tape Deck

SH-MK390



Color

(H)...Gray Type

Area

Country Code	Area	Color
(E)	Continental Europe.	(H)

SPECIFICATIONS

Power supply ..... 12 VDC
Power consumption ..... 1.2 W
Connecting cable ..... 15 pin D sub connector
6 m/19¾ ft
External dimensions
(W× H× D) ..... 250 mm× 51 mm× 132 mm
(9⅞"× 2"× 5¼")
Weight ..... 890 g
(approx. 2 pounds)

NOTE: Specifications are subject to change without notice. Weight and dimensions are approximate.

■ CONTENTS

	Page
SET UP	2
FRONT PANEL CONTROLS	2~5
BASIC OPERATING PROCEDURE	6
SHUTTLE SEARCH FUNCTION	6
DISASSEMBLY INSTRUCTIONS	7, 8
INTERNAL CONNECTION OF LCD	8
TERMINAL FUNCTION OF IC'S	9
TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES	10
SCHEMATIC DIAGRAM	10~12
PRINTED CIRCUIT BOARDS	13, 14
REPLACEMENT PARTS LIST	15, 16
EXPLODED VIEW	17
RESISTORS & CAPACITORS	18
PACKING	18

Panasonic

■SET UP

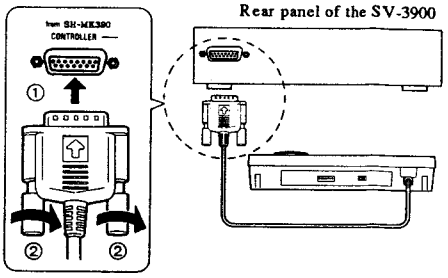
Installation

This unit is a precision instrument. Be sure to place it on a flat surface.
Avoid placing the SH-MK390:
Near any equipment or device that generates strong magnetism.
On any heat-generating equipment or device, or in any place where the temperature is high (35°C/95°F or higher).
Extremely cold places (5°C/41°F or below).
Near an AM/FM tuner or TV.
(It may produce noise in the broadcast, or disturb the TV picture.)
For long periods of time in direct sunlight.
In dusty or smoky locations.
In locations prone to vibrations.
Do not place heavy objects on top of the unit.
When carrying or storing the unit, handle it with care so it is not subject to any strong bumps.
To avoid problems due to vibration;
Do not place a book or similar object under this unit.
Do not route the connection cables (of this or other units) across the operation panel, across the top, or under the unit.

Connections

1 Connect the SH-MK390 plug to the rear-panel 15-pin socket fitted to the SV-3900, as shown.

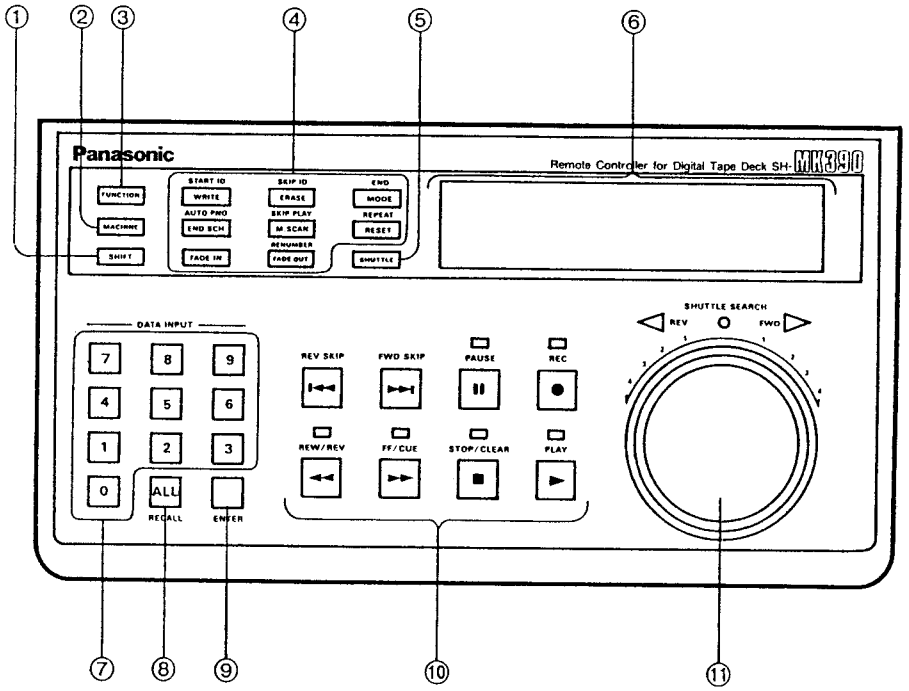
2 Turn the two set screws clockwise so lock the plug to the socket.



NOTE: When using the SH-MK390, do not use the 9-pin "IN" connector provided on the rear panel of the SV-3900.

■FRONT PANEL CONTROLS

The control panel consists of the following components.



1) SHIFT button
2) MACHINE button
3) FUNCTION button
4) Editing buttons
5) SHUTTLE button
6) LCD Display
7) Numeric keys
8) ALL/RECALL button
9) ENTER button
10) Transport Operation buttons
11) SHUTTLE SEARCH wheel

Control Section

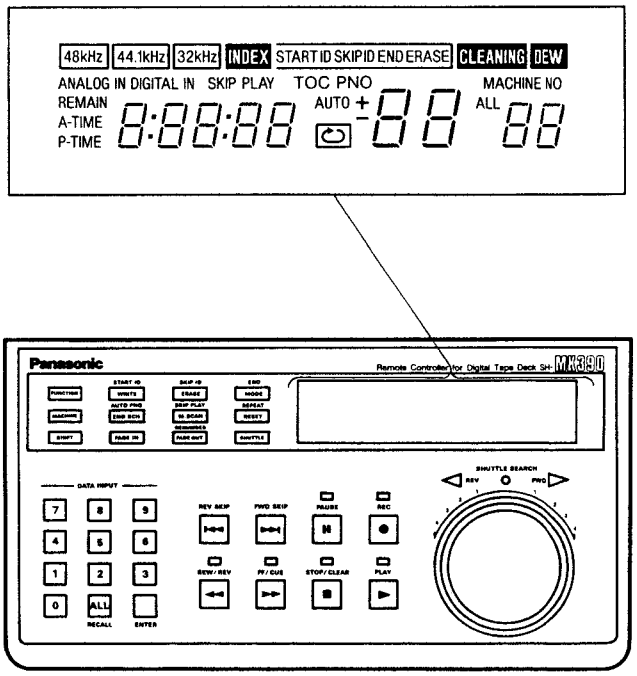
Buttons	Name	Function
PLAY	PLAY button/indicator	Use to initiate recording or playback mode. Use also to manually record program numbers during recording.
PAUSE	PAUSE button/indicator	Use to temporarily interrupt playback or recording mode.
REC	RECORD button/indicator	Use to place the unit in record standby mode.
STOP/CLEAR	STOP/CLEAR button/indicator	Use to stop all functions. This button also clears the program mode.
FF/CUE	FF/CUE button/indicator	Use to advance the tape rapidly, or for audible high-speed search in play mode (cue).
REW/REV	REW/REV button/indicator	Use to rewind the tape, or for audible high-speed search in play mode (review).
FWD SKIP	FORWARD SKIP button	Use to skip the program forward to the desired PNO. Repeated pressing of this button causes the unit to skip forwards several program numbers.
REV SKIP	REVERSE SKIP button	Use to skip the program backward to the desired PNO. Repeated pressing of this button causes the unit to skip backwards several program numbers.
0 ~ 9	Numeric keys	Use to input Machine number, Program number, and Function number.
ENTER	ENTER button	Use to confirm an entered Machine number, Program number, or Function number.
ALL RECALL	ALL/RECALL button	Use to enter machine commands to all connected decks, and to show the sequence of program play set ups.
		For information and how to use the SHUTTLE SEARCH wheel and indicators, see page 6.

Buttons	Name	Function
FADE IN	FADE IN button	Use to start recording and increase the sound level gradually for approx. 2½ seconds, until full record level is reached.
RENUMBER FADE OUT	FADE OUT/ RENUMBER button	FADE OUT: Use to end a recording by gradually reducing the recorded sound level for approx. 5 seconds and then enter Record Standby mode. RENUMBER: Use to assign sequential program numbers (01, 02, 03...) to Start ID's recorded during indexing.
SKIP PLAY M.SCAN	MUSIC SCAN/ SKIP PLAY button	M.SCAN: Use to play back the beginning of each recorded program on the tape for about 15 seconds for quick identification of program content. SKIP PLAY: Use to enter Auto Skip mode.
END MODE	COUNTER MODE/END button	MODE: Use to select the desired counter mode, between Absolute time, Program time, Time Remaining, TOC and Tape Counter. END: Use to record an End Mark on a recording.
REPEAT RESET	COUNTER RESET/REPEAT button	RESET: Use to reset the tape counter to "0000" (when the display mode is set to tape counter mode). REPEAT: Use to repeat playback of a tape.
SHUTTLE	SHUTTLE button	Activates the front-panel shuttle search wheel.
MACHINE	MACHINE button	Use to enter the Machine number input mode to specify a machine number for control.
FUNCTION	FUNCTION button	Use to enter the Function number input mode to select one of the SH-MK390's built-in functions.

Editing Section

Buttons	Name	Function
SHIFT	SHIFT button	This unit comes with two kinds of editing buttons: •Single function buttons When one of these buttons is pressed, the function indicated on the button is performed. •Double function buttons When one of these buttons is pressed, the function indicated on the button is performed as above. When the button is pressed simultaneously with the SHIFT button being held down, however, the function indicated above the button is performed instead. In this way, the SHIFT button is used to select the function shown above the double-function buttons.
START ID WRITE	ID WRITE/ START ID button	WRITE: Use to record Start or Skip ID's during indexing. START ID: Use to enter the Start ID Write/Erase mode.
SKIP ID ERASE	ID ERASE/SKIP ID button	ERASE: Use to erase Start or Skip ID's during indexing. SKIP ID: Use to enter the Skip ID Write/Erase mode.
AUTO PNO END SCH	END SEARCH/AUTO PROGRAM NUMBER button	END SCH: Use to advance at high speed to the end of the recorded portion of the tape. Use also to continue recording from the last recorded position, or to find the total number of programs or total time recorded on the tape (in the case of tapes where absolute time and program numbers have been recorded). AUTO PNO: Use to automatically record program numbers or Start ID's during recording or indexing by detecting a level transition.

LCD Display

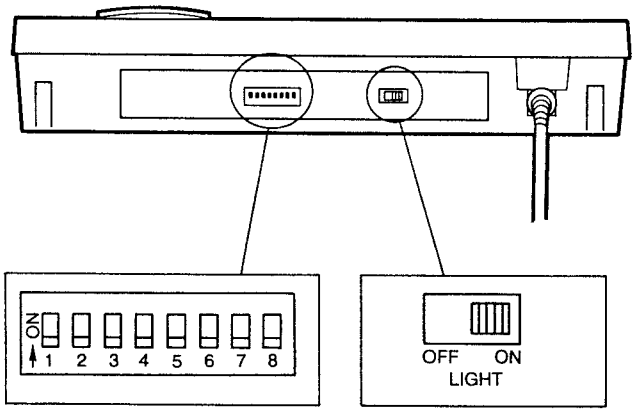


LCD Display	Name	Meaning
48kHz 44.1kHz 32kHz	**Sampling frequency indicators**	Displays the sampling frequency during recording or playback. Changes automatically depending on digital input signal.
INDEX	**INDEX indicator**	Indicates that one of several Index modes have been selected.
START ID	**START ID indicator**	Indicates that a Start ID is being or has been recorded.
SKIP ID	**SKIP ID indicator**	Indicates that a Skip ID is being or has been recorded.
END	**END indicator**	Indicates that an End Mark is being or has been recorded.
ERASE	**ERASE indicator**	Indicates that a Start ID or Skip ID is being erased.
CLEANING	**CLEANING indicator**	Indicates that the SV-3900's DAT heads need cleaning. (See page 30 of the SV-3900's Operating Instructions.)
DEW	**DEW indicator**	Indicates the formation of dew within the SV-3900. (See page 29 of the SV-3900's Operating Instructions.)
ANALOG IN	**ANALOG IN indicator**	Indicates that an analog input has been selected.
DIGITAL IN	**DIGITAL IN indicator**	Indicates that a digital input has been selected.
SKIP PLAY	**SKIP PLAY indicator**	Indicates that Auto Skip mode has been selected.

LCD Display	Name	Meaning
TOC	**TOC (table of contents) indicator**	Indicates the total program count and tape length of a tape onto which the TOC information has been recorded.
PNO	**PNO (program number) indicator**	Indicates the number of the current program.
AUTO	**AUTO indicator**	Indicates that the unit is set in the automatic recording mode for Program numbers and Start IDs.
	REPEAT indicator	This indicator is used for repeat loop-play function. Indicates that all programs can be played back repeatedly.
88	**Program number display**	Displays the number of the current program when PNO indicator appears. Displays the TOC information when TOC indicator appears.
REMAIN A-TIME P-TIME 8:88:88	**Counter display panel**	The following are displayed according to the setting of the counter mode button: 1) absolute time This display is the default mode when power is first switched on. 2) program time 3) remaining time 4) TOC information 5) tape counter
ALL	**ALL indicator**	Indicates that all SV-3900 decks connected to the SH-MK390 have been selected, and will follow front-panel transport commands.
MACHINE NO 88	**MACHINE NUMBER display**	Displays either the machine number input by using the numeric keys or the machine number of the deck which is being specified or controlled.

Switch Settings

Rear panel of SH-MK390



DIP-Switches LIGHT ON/OFF Switch

Light ON/OFF switch

ON: The back light of the LCD display is illuminated.
OFF: The back light of the LCD display is turned off.
Normally, set this switch to OFF. Set it to ON only when there is insufficient light in the room.

DIP Switch settings

	Switch Setting	Function
1	Function 1:	ON = Dubbing mode OFF = released
2	Function 2:	ON = Continuous Playback OFF = released
3	Function 3:	ON = Continuous Recording OFF = released
4	Selection of Search and Play or Search and Pause during Program Play Mode	ON = Search and Pause OFF = Search and Play
5	Unused	
6	Unused	
7	Unused	
8	Test Mode Selection	ON = Test Mode OFF = Normal Mode

For further information, refer to the SH-MK390 Service Manual.

Initially, the DIP switches are set to OFF. Turn them ON as necessary when using the function keys, and other modes.

Before Using the SH-MK390

Operating the unit with the SV-3900

Before using the unit, carry out the following set ups on the SV-3900.

1 Set the Machine ID number using the rear-panel DIP switches on the SV-3900.
The machine number can be set between 00 and 31.
Refer to the SV-3900 instruction manual for details of how to set the Machine ID number.

CAUTION! Do not use a Machine ID number that has already been allocated to another deck. Switch OFF the power to the SV-3900 before setting the machine number. If you set the machine number with the power ON, switch the power OFF then ON again. When the power is switched ON, the machine number will be displayed on the SH-MK390.

2 Switch ON the deck.
When the power is first switched ON, SV-3900 automatically enters the Remote mode.

3 Set the deck to the local mode by pressing the LOCAL/REMOTE button.

4 Open the cassette holder, insert a cassette tape and close the holder.

5 Set the unit to the remote mode by pressing the LOCAL/REMOTE button.
Check to see if the remote indicator is illuminated.

Precautions for switching ON the power
When a number of decks are connected together in network mode, switch ON the other decks first, then finally switch ON the deck connected to the remote controller, or reset it with function key 9. If you fail to perform this last stage, the information from the deck connected to the remote controller will not be read correctly. (See page 74 for details of using function key 9.)

Precaution to be observed when the Machine ID numbers are changed while a deck is being used.
Reset the deck with function key 9.

To operate the specified deck only

1 Press the MACHINE button to enter the Machine Number Setting mode.
"00" will flash on the machine number display.

2 Using the numeric keys, input the machine number of the deck to be operated.
The input machine number will be displayed on the machine number display.

For example: To input "10" as a machine number, press the 1 and 0 buttons in sequence on the Key pad.

3 Press the ENTER button.
The selected machine will now respond to the SH-MK390's command keys.

To operate all decks

1 Press the MACHINE button to enter the Machine Number Setting mode.
"00" will flash on the machine number display.

2 Press the ALL button.
"AL" will be displayed on the machine number display.

3 Press the ENTER button.
All decks connected to the SH-MK390 will now respond to the command keys.

Error display: "Er" will be displayed in the machine number display for the following cases:
- If a SV-3900 is not connected correctly (incorrect ES Bus/P2 selection, etc.)
- If an inappropriate machine number is input

(In this case, confirm that the machine has been connected correctly, and then input the appropriate machine number once again.)

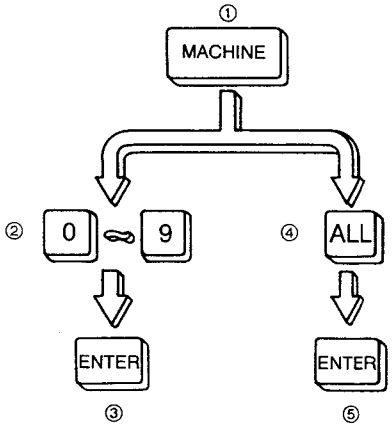
NOTE: In the Machine Number Setting mode, only the numeric keys, ALL button, ENTER button, machine number button, and STOP button operate.

Setting the Machine Numbers

By pre-setting the Machine ID number of each connected deck, the following two operations can be performed from the remote controller.

1 Operate a specific machine from a number of decks.

2 Operate all connected decks simultaneously.



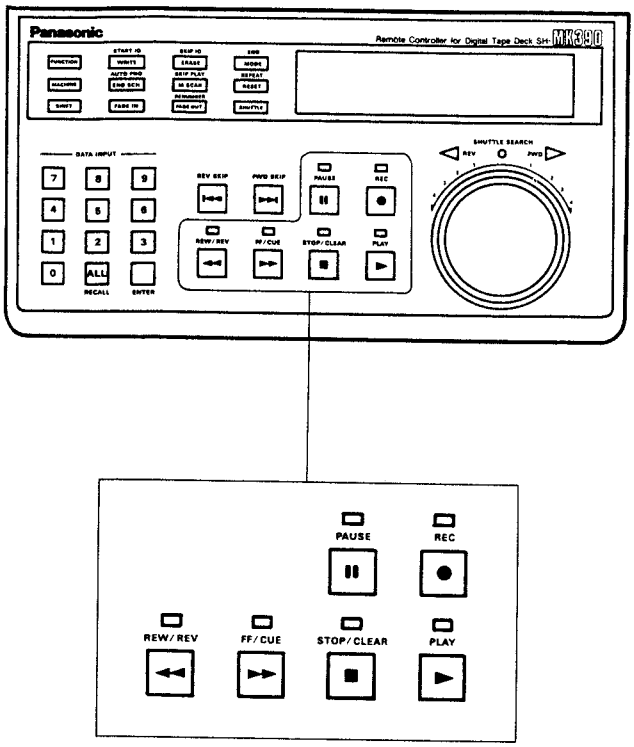
1) Press the MACHINE button to enter the Machine Number Specification mode.
2) Press the numeric keys to specify the machine number.
3) Press the ENTER button to operate only the deck with the corresponding machine number.
4) or: Press the ALL/RECALL button.
5) Press the ENTER button to operate all decks simultaneously.

Digital Through Put Function

The SV-3900 has a digital through put function which enables digital input signals to be output directly between several serially connected decks. In this way, signals can be sent back and forth between decks directly without changing over connections, while performing program editing or digital dubbing from a number of decks.

For further information, refer to the SV-3900 Operating Instructions.

■ BASIC OPERATING PROCEDURE



To Begin Recording or Playback

Press the PLAY button.
The play indicator illuminates, and tape playback begins.

Press the REC button, and then press the PLAY button.
The rec and play indicators illuminate, and recording begins.

To Interrupt Recording or Playback Temporarily

Press the PAUSE button.
The pause indicator illuminates, and recording or playback stops temporarily.

Press the PLAY button to resume replay or recording.

To Stop Recording or Playback

Press the STOP button.
Recording or playback stops.
In the case of programed play, contents of the SH-MK390's memory are also cleared.

Rewind Play, Fast-Forward Play (During playback)

When the FAST-FORWARD button or REWIND button is depressed and held down:
Advances or reverses the tape during playback at about 3 times normal speed, with reduced level audio output. (This mode does not operate during recording.)

This unit is also provided with a shuttle-search function; the shuttle wheel can thus be used to perform rewind and fast-forward in play and pause mode. For more details, see page 24.

Rewind, Fast-Forward (During stop mode)

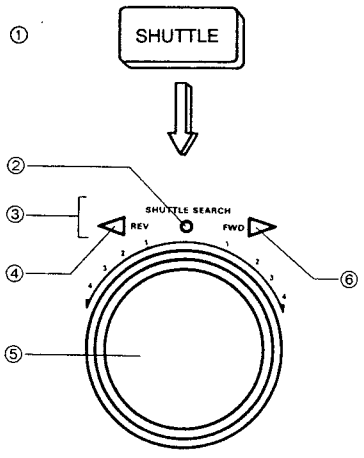
When the FAST-FORWARD button or REWIND button is pressed once, the SV-3900 advances/reverses tape at about 250 times normal speed; when pressed twice, it advances/reverses tape at about 400 times normal speed. Each subsequent press causes alternate switching between the 250-times and 400-times speeds.

You can select × 400 speed search for SV-3900
— See Operating Instructions.

NOTE: If the SV-3900 is not going to be used for extended periods, rewind the cassette tape to the beginning, remove it and turn off the power.

■ SHUTTLE SEARCH FUNCTION

During playback or pause mode



1) Press the SHUTTLE button.
2) SHUTTLE SEARCH indicator will illuminate.
3) SHUTTLE SEARCH indicators indicate forward or backward motion.
4) REVERSE search indicator
5) SHUTTLE SEARCH wheel
6) FORWARD search indicator

Shuttle search

This function allows you to search rapidly forward or backward on the tape for specific sections with a high degree of accuracy, while listening to the material recorded on the tape.

Shuttle search function can be performed only in the play or pause mode.

Search play speed (four steps) in forward and backward direction

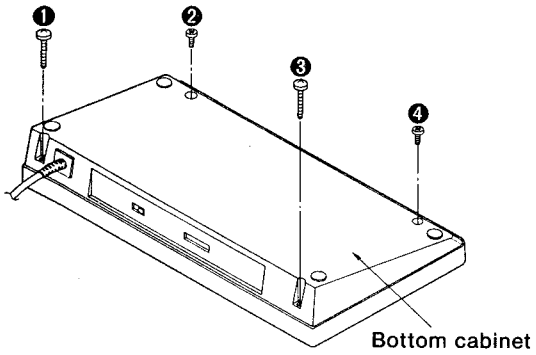
Scale Marking	Operation mode	
	Play	Pause
1	× 3	× ½
2	× 5	× 1
3	× 9	× 2
4	× 15	× 3

To cancel the shuttle search mode, press the SHUTTLE button again or press the STOP button.
The shuttle search indicator goes out.

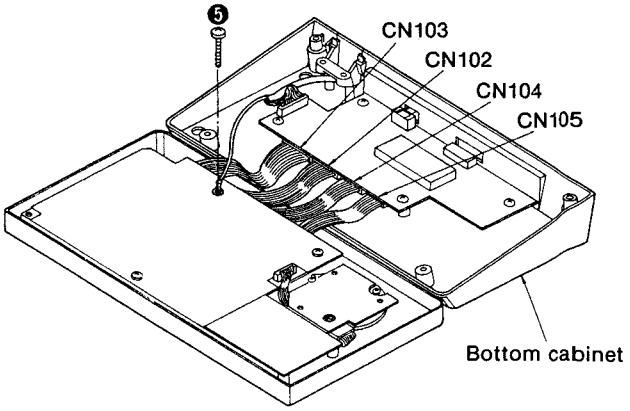
■ DISASSEMBLY INSTRUCTIONS

Ref. No. 1	Removal of the bottom cabinet

Procedure 1



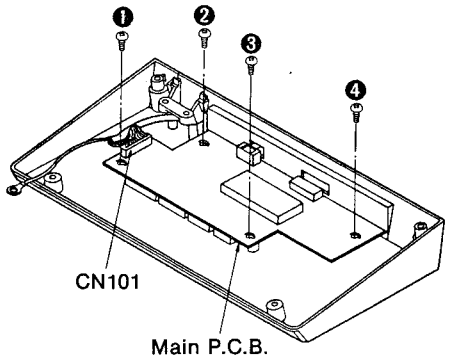
1. Remove the 4 screws (❶~❹).



2. Remove the 1 screw (❺).
3. Remove the connectors (CN102, CN103, CN104, CN105).

Ref. No. 2	Removal of the main P.C.B.

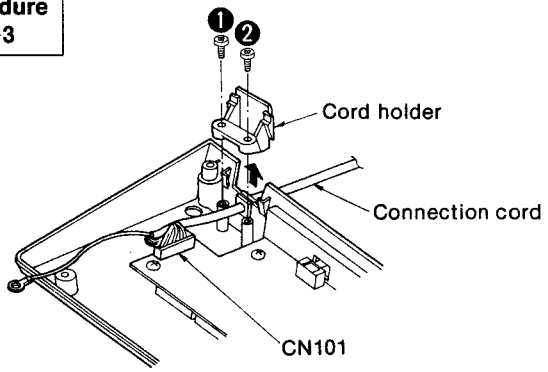
Procedure 1→2



1. Remove the connector (CN101).
2. Remove the 4 screws (❶~❹).

Ref. No. 3	Removal of the connection cord

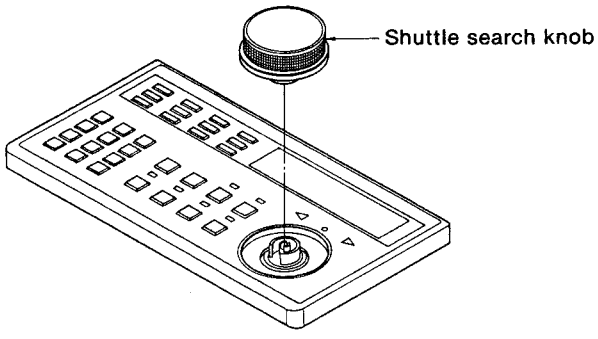
Procedure 1→3



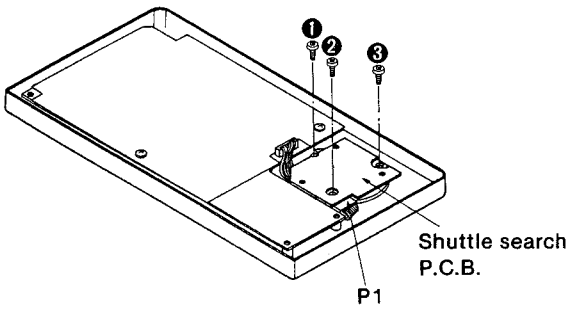
1. Remove the connector (CN101).
2. Remove the 2 screws (❶, ❷).
3. Remove the cord holder.
4. Pull out the connection cord in the direction of the arrow.

Ref. No. 4	Removal of the shuttle search P.C.B.

Procedure 1→4

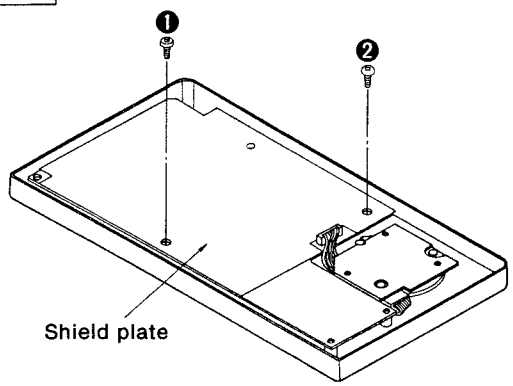


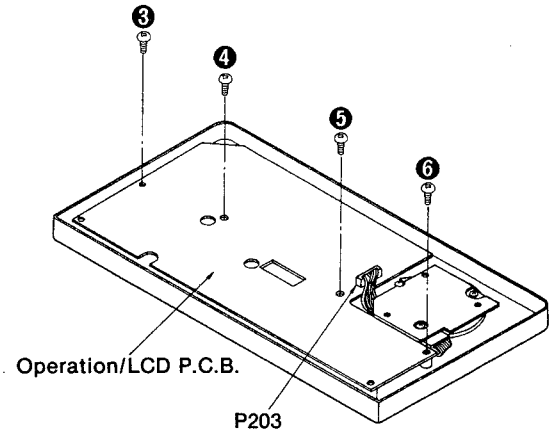
1. Pull out the shuttle search knob.



2. Remove the connector (P1).
3. Remove the 3 screws (❶~❸).

Ref. No. 5	Removal of the operation/LCD P.C.B.
Procedure 1→5	

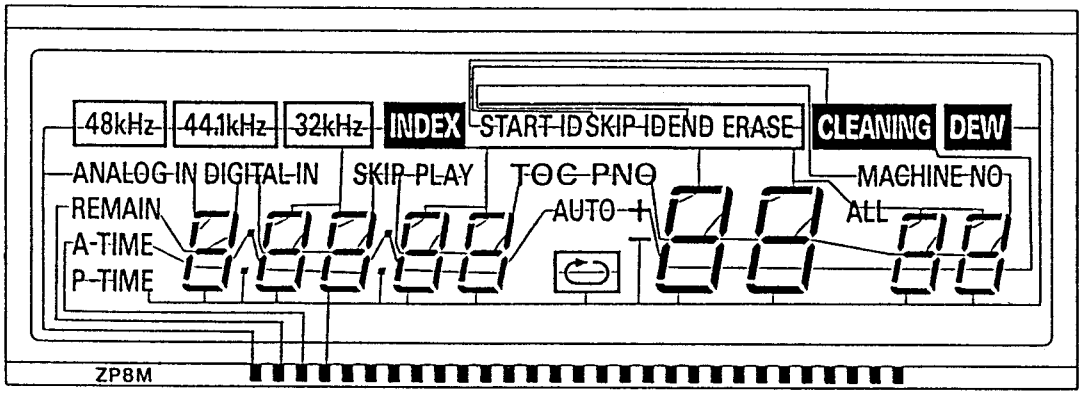




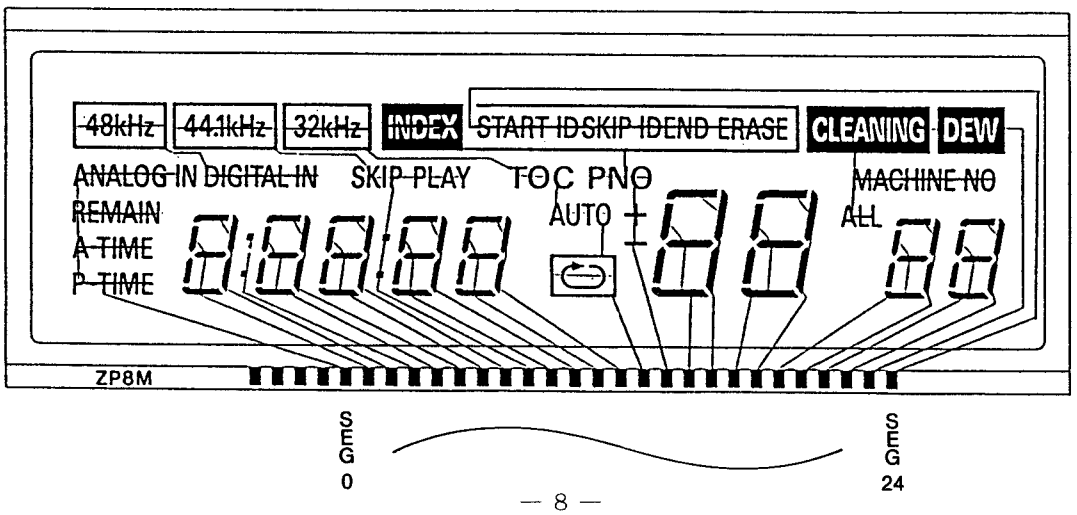
1. Remove the 2 screws (❶, ❷).
2. Remove the shield plate.
3. Remove the connector (P203).
4. Remove the 4 screws (❸~❻).

■ INTERNAL CONNECTION OF LCD

• SEGMENT CONNECTION DIAGRAM



• COMMON CONNECTION DIAGRAM



■TERMINAL FUNCTION OF IC'S

• IC101 (M50747H256SP): MICROCOMPUTER

Pin No.	Mark	I/O Division	Function
1	V_{CC}	I	Power supply terminal
2	(OUT)	O	(Not used, open)
3 ∫ 9	PD 6 ∫ PD 0	O	LED dynamic indication SCAN signal
10 ∫ 17	PC 7 ∫ PC 0	I	Mode set up of DIP SW
18, 19	NC	—	(Not used, connected to GND)
20	TXD	O	RS-422A transmit data
21	RXD	I	RS-422A receipt data
22 ∫ 24	NC	—	(Not used, connected to GND)
25	BREAK	I/O	Transmit data break signal
26, 27	GND	—	GND terminal
28	RESET	I	Reset signal
29	X IN	I	Clock signal input
30	X OUT	O	Clock signal output
31	NC	—	(Not used, open)

Pin No.	Mark	I/O Division	Function
32	V_{SS}	—	GND terminal
33 ∫ 40	PB 7 ∫ PB 0	I	Key read in data
41	PA 4	I	Shift key input
42 ∫ 45	PA 3 ∫ PA 0	O	Key scan signal
46 ∫ 50	NC	—	(Not used, connected to GND)
51	LRES	O	LCD driver reset signal
52	C/O	O	LCD indication data
53	BUSY	I	LCD indication BUSY signal
54	CS	O	Chip selector terminal
55	SI	O	Serial data signal
56	SCK	O	Serial clock signal
57 ∫ 59	NC	—	(Not used, connected to GND)
60 ∫ 64	B5 ∫ B1	I	Shuttle dial data bit pattern

• IC201 (UPD7225G): LCD CONTROL

Pin No.	Mark	I/O Division	Function
1	CL 2	—	(Not used, connected to resistor)
2	NSYNC	—	(Not used, connected to resistor)
3 ∫ 5	NC 1 ∫ NC 3	—	(Not used, connected to resistor)
6	V_{SS}	—	GND terminal
7	V_{DD}	I	Power supply terminal
8	NSCK	I	Serial clock signal
9	SI	I	Serial data signal
10	NCS	I	Chip selector terminal
11	NBUSY	O	LCD indication BUSY signal
12	C/O	I	LCD indication data

Pin No.	Mark	I/O Division	Function
13	RES	I	Reset signal
14	NC	—	(Not used, open)
15 ∫ 18	COM 0 ∫ COM 3	O	Common signal
19 ∫ 32	SEG 0 ∫ SEG 13	O	Segment signal
33	V_{DD}	I	Power supply terminal
34 ∫ 49	SEG 14 ∫ SEG 29	O	Segment signal
50, 51	NC	—	(Not used, open)
52	CL 1	—	(Not used, connected to resistor)

■SCHEMATIC DIAGRAM

(Parts list on pages 15, 16, 18.)

(This schematic diagram may be modified at any time with development of new technology.)

Note:

- S101 : DIP switch.
- S102 : Light on/off switch.
- S301 : END/MODE switch.
- S302 : SKIP ID/ERASE switch.
- S303 : START ID/WRITE switch.
- S304 : FUNCTION switch.
- S305~S308 : Ten key switches. (S305: 1, S306: 4, S307: 7, S308: 0)
- S309 : REPEAT/RESET switch.
- S310 : SKIP PLAY/M. SCAN switch.
- S311 : AUTO PNO/END SCH switch.
- S312 : MACHINE switch.
- S313~S315 : Ten key switches. (S313: 2, S314: 5, S315: 8)
- S316 : RECALL switch.
- S317 : SHUTTLE switch.
- S318 : RENUMBER/FADE OUT switch.
- S319 : FADE IN switch.
- S320 : SHIFT switch.
- S321~S323 : Ten key switches. (S321: 3, S322: 6, S323: 9)
- S324 : ENTER switch.
- S325 : REV SKIP switch.
- S326 : FWD SKIP switch.
- S327 : REW/REV switch.
- S328 : REC switch.
- S329 : PAUSE switch.
- S330 : PLAY switch.
- S331 : STOP/CLEAR switch.
- S332 : FF/CUE switch.

- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise.
  1K=1,000 (Ω), 1M=1,000k (Ω)
- Capacity are in micro-farads (μF) unless specified otherwise.
- All voltage values shown in circuitry are under no signal condition and playback mode with volume control at minimum position otherwise specified.
  ( ).....Voltage values at recording mode.
  For measurement us EVM.
- (▬▬) indicates +B (bias).

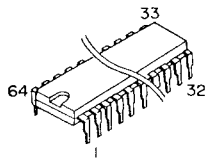
＊Caution!

IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.

＊ Cover the parts boxes made of plastics with aluminum foil.
＊ Ground the soldering iron.
＊ Put a conductive mat on the work table.
＊ Do not touch the legs of IC or LSI with the fingers directly.

■TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

M50747H256SP



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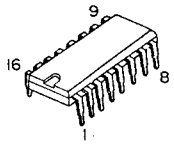
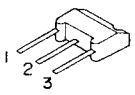


MN1280R



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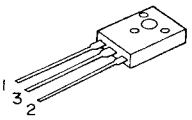

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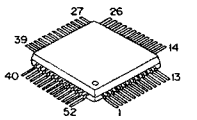
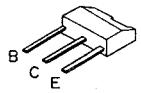


DTA143ZA
DTC143ZA



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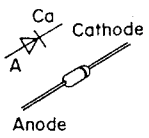
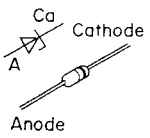


MA4220MTA



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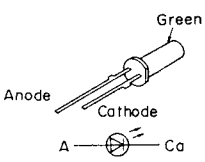

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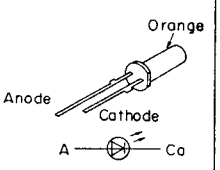
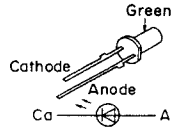


LN340GCP



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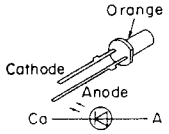

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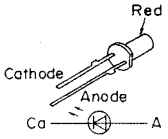
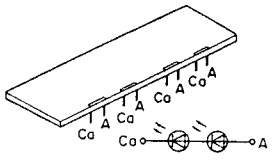


VGL0404



1 2 3 4 5 6 7 8 9

A B C D E F

A MAIN CIRCUIT

IC101
M50747H256SP
MICRO COMPUTER

IC103
MN1280R
RESET SIGNAL GENERATOR

IC102
M5M34050P
DUAL TRANCEIVER

IC104
M5F78M05L
REGULATOR

B OPERATION / LCD CIRCUIT

Q301 ~ 304
DTA143ZA
LED DRIVE

Q305 ~ 307
DTC143ZA
LED DRIVE

IC201
UPD7225G
LCD DRIVE

LCD DISPLAY

LCD201 (EDD125ZP8A4P)

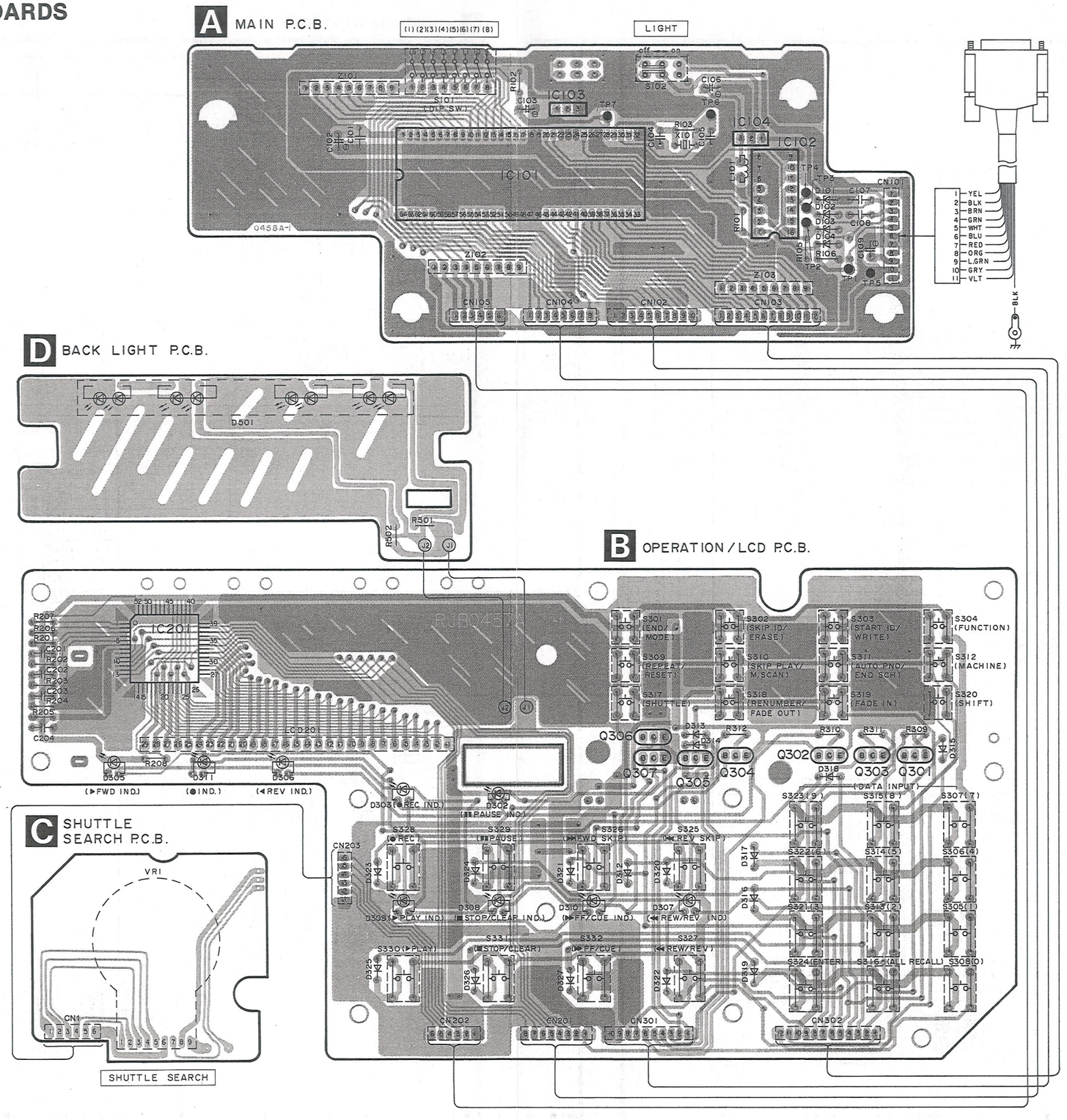
C SHUTTLE SEARCH CIRCUIT

VR1 (SHUTTLE DIAL)

D BACK LIGHT CIRCUIT

D501 VGL0404

■ PRINTED CIRCUIT BOARDS



Notes:

This diagram shows a front view of the IC mounting surface.

1. The circuit shown in (▬) on the conductor indicates printed circuit on the back side of the printed circuit board.
2. The circuit shown in (▬) on the conductor indicates printed circuit on the front side of the printed circuit board.
3. The symbols (•) shown in the circuit board indicate connection points between conductors on the front side and back side of the circuit board.

• This printed circuit board may be modified at any time with the developement of new technology.

■ REPLACEMENT PARTS LIST

Notes : * Important safety notice:
* The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC101	M50747H256SP	IC, MICROCOMPUTER	
IC102	M5M34050P	IC, DUAL TRANCEIVER	
IC103	MN1280R	IC, RESET CONTROL	
IC104	M5F78M05L	IC, REGULATOR	
IC201	UPD7225G	IC, LCD CONTROL	
		TRANSISTOR(S)	
Q301-304	DTA143ZA	TRANSISTOR	
Q305-307	DTC143ZA	TRANSISTOR	
		DIODE(S)	
D101-104	MA4220MTA	DIODE	
D302	LN440YCP	L. E. D.	
D303	LN840RCP	L. E. D.	
D305, 306	LN31GCPHLG3	L. E. D.	
D307	LN340GCP	L. E. D.	
D308	LN440YCP	L. E. D.	
D309, 310	LN340GCP	L. E. D.	
D311	LN41YCPHL	L. E. D.	
D312-327	MA165	DIODE	
D501	VGL0404	L. E. D.	
		VARIABLE RESISTOR(S)	
VR1	VSQ0651	V. R, SHUTTLE SEARCH DIAL	
		COMPONENT COMBINATION(S)	
Z101-103	EXBP88103J	COMPONENT COMBINATION	
		COIL(S)	
L101	EXCELSR35S	COIL	
		OSCILLATOR(S)	
X101	RSXB9M83M01	OSCILLATOR	
		CONNECTOR(S)	
CN1	VJP1246T	CONNECTOR(6P)	
CN101	RJP11G18ZA	CONNECTOR(11P)	

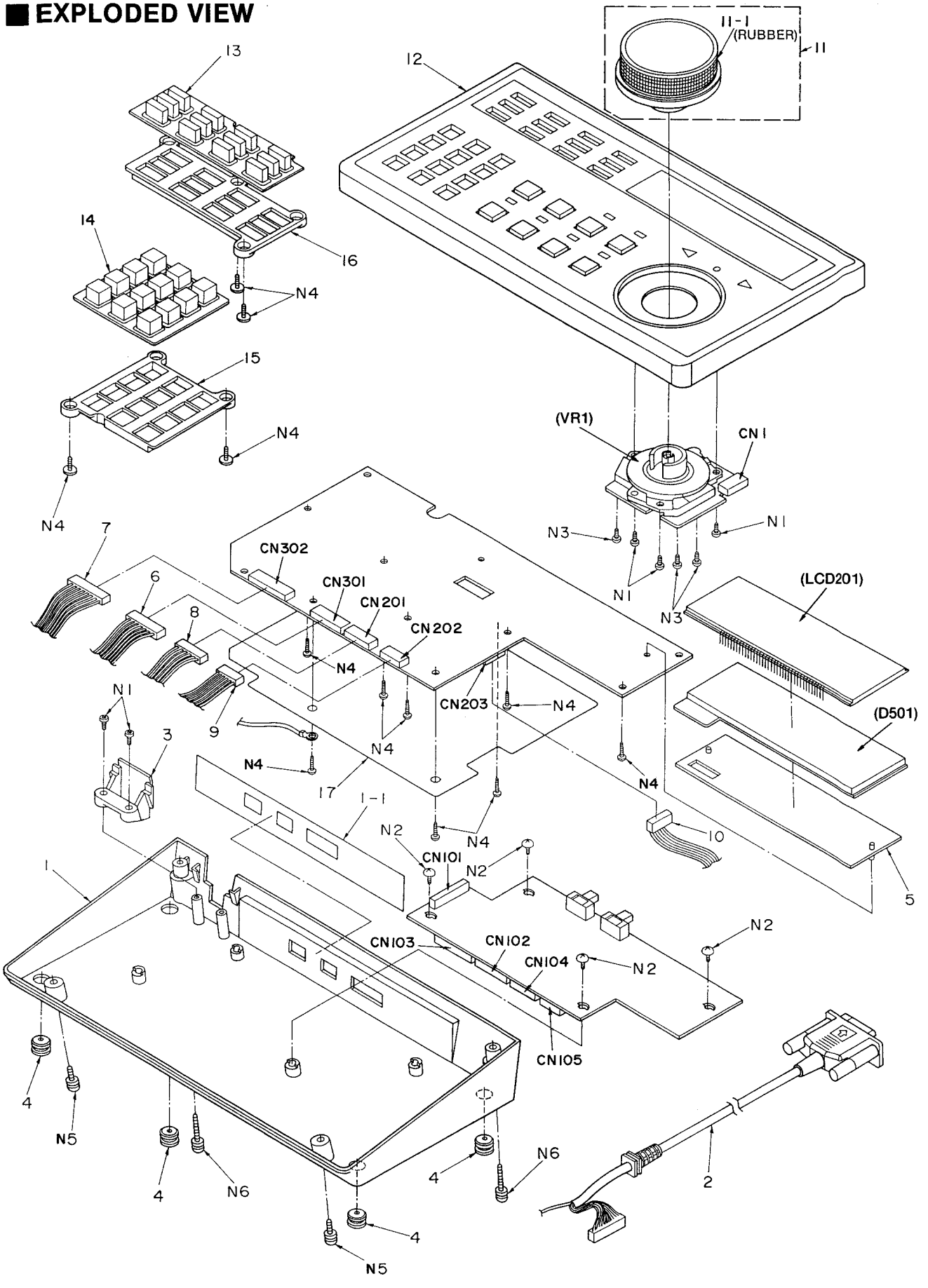
Ref. No.	Part No.	Part Name & Description	Remarks
CN102	VJP1250T	CONNECTOR(10P)	
CN103	VJP1252T	CONNECTOR(12P)	
CN104	VJP1248T	CONNECTOR(8P)	
CN105	VJP1246T	CONNECTOR(6P)	
CN201	VJP1248T	CONNECTOR(8P)	
CN202	VJP1246T	CONNECTOR(6P)	
CN203	VJP1233T	CONNECTOR(6P)	
CN301	VJP1250T	CONNECTOR(10P)	
CN302	VJP1252T	CONNECTOR(12P)	
		LCD	
LCD201	EDD125ZP8A4P	LCD	
		SWITCH(ES)	
S101	VST0096	SW, DIP	
S102	VSS0154	SW, LIGHT ON/OFF	
S301	EVQQSB04B	SW, END/MODE	
S302	EVQQSB04B	SW, SKIP ID/ERASE	
S303	EVQQSB04B	SW, ST ID/WRITE	
S304	EVQQSB04B	SW, FUNCTION	
S305	EVQQJ104K	SW, (1)	
S306	EVQQJ104K	SW, (4)	
S307	EVQQJ104K	SW, (7)	
S308	EVQQJ104K	SW, (0)	
S309	EVQQSB04B	SW, REPEAT/RESET	
S310	EVQQSB04B	SW, SKIP PLAY/M SCAN	
S311	EVQQSB04B	SW, AUTO PNO/END SEARCH	
S312	EVQQSB04B	SW, MACHINE	
S313	EVQQJ104K	SW, (2)	
S314	EVQQJ104K	SW, (5)	
S315	EVQQJ104K	SW, (8)	
S316	EVQQJ104K	SW, RECALL	
S317	EVQQSB04B	SW, SHUTTLE	
S318	EVQQSB04B	SW, RENUMBER/FADE OUT	
S319	EVQQSB04B	SW, FADE IN	
S320	EVQQSB04B	SW, SHIFT	
S321	EVQQJ104K	SW, (3)	
S322	EVQQJ104K	SW, (6)	
S323	EVQQJ104K	SW, (9)	
S324	EVQQJ104K	SW, ENTER	
S325	EVQQJ104K	SW, SKIP(REV)	
S326	EVQQJ104K	SW, SKIP(FWD)	
S327	EVQQJ104K	SW, REW/REV	
S328	EVQQJ104K	SW, REC	
S329	EVQQJ104K	SW, PAUSE	

Ref. No.	Part No.	Part Name & Description	Remarks
S330	EVQQJ104K	SW, PLAY	
S331	EVQQJ104K	SW, STOP/CLEAR	
S332	EVQQJ104K	SW, FF/CUE	
		CABINET AND CHASSIS	
1	RFKJHMK390EH	BOTTOM CASE ASS'Y	
1-1	VGH2084	SW DISPLAY PLATE	
2	RJL9X001X60	CONNECTION CORD	
3	VGQ1852-1	CORD HOLDER	
4	VKA0038	FOOT RUBBER	
5	VMX1646	SPACER, BACK LIGHT	
6	REZ0390	CONNECTOR ASS'Y(10P)	
7	REZ0391	CONNECTOR ASS'Y(12P)	
8	REZ0392	CONNECTOR ASS'Y(8P)	
9	REZ0393	CONNECTOR ASS'Y(6P)	
10	REZ0394	CONNECTOR ASS'Y(6P)	
11	RFKNHMK390PP	SHUTTLE SEARCH DIAL ASS'Y	
11-1	VMG0476	RUBBER, SHUTTLE SEARCH	
12	RFKKMK390PPH	UPPER CASE ASS'Y	
13	RGU0402	KNOB, FUNCTION	
14	RGU0404	KNOB, 10 KEY	
15	VGQ1850	RUBBER CUSHION(A)	
16	VGQ1851	RUBBER CUSHION(B)	
17	VMZ1419	SHIELD PLATE	
		SCREW(S)	
N1	XTV3+8J	SCREW	
N2	XTV4+8J	SCREW	
N3	XTV3+6F	SCREW	
N4	XTV4+10J	SCREW	
N5	XSB3+16FCS	SCREW	
N6	XSB3+8FCS	SCREW	
		PACKING MATERIAL	
P1	RPG0978	PACKING CASE	
P2	VPN2475	PAD(LEFT)	
P3	VPN2476	PAD(RIGHT)	
P4	XZB09X10C03	PROTECTION BAG	
P5	XZB30X23A04	PROTECTION BAG	
		ACCESSORIES	
A1	RQF1181	INSTRUCTION MANUAL	
		<PRINTED CIRCUIT BOARDS	
		ASS'Y>	

Ref. No.	Part No.	Part Name & Description	Remarks
PCB1	REP0797A	MAIN P.C.B. ASS'Y	(NLA)
PCB2	REP0795A	OPERATION/LCD P.C.B. ASS'Y	(NLA)
PCB3	REP0796A	BACK LIGHT P.C.B. ASS'Y	(NLA)
PCB4	REP0798A	SHUTTLE SEARCH P.C.B. ASS'Y	(NLA)

Note: Printed circuit board assembly with mark (NLA) is no longer available after discontinuation of the product.

■ EXPLODED VIEW

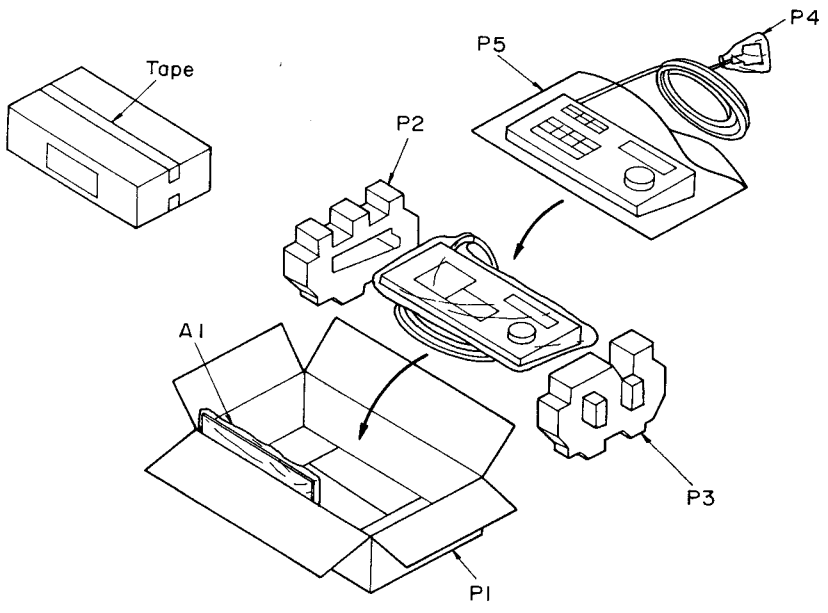


■ RESISTORS & CAPACITORS

Notes : * Capacity valuse are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM) , 1M=1,000k (OHM)

Ref. No.	Part No.	Values & Remarks
		RESISTOR (S)
R101, 102	ERDS2TJ472	1/4W 4.7K
R103	ERDS2TJ105T	1/4W 1M
R105, 106	ERDS2TJ152	1/4W 1.5K
R201-203	ERDS2TJ104	1/4W 100K
R204	ERDS2TJ333	1/4W 33K
R205	ERDS2TJ271	1/4W 270
R206	ERDS2TJ474	1/4W 470K
R207	ERDS2TJ184T	1/4W 180K
R208	ERDS2TJ271	1/4W 270
R309-312	ERDS2TJ101	1/4W 100
R501, 502	ERDS2TJ122	1/4W 1.2K
		CAPACITOR (S)
C101	ECBT1E103ZF	25V 0.01U
C102	ECEA0JKA470	6.3V 47U
C103	ECEA1HKAR22	50V 0.22U
C104, 105	ECCF1H330JC	50V 33P
C106	ECEA0JKA470	6.3V 47U
C107, 108	ECBT1E103ZF	25V 0.01U
C109	ECEA1CKA470	16V 47U
C201-204	ECBT1E103ZF	25V 0.01U

■ PACKING



Printed in Japan
H910101500 HH/TM